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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/770,540	01/26/2001	Klaus F. Schuegaraf	MICRON. 8DV2C1	6787

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EXAMINER

Schillinger, Laura M

ART UNIT	PAPER NUMBER
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2813

DATE MAILED: 03/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/770,540

Applicant(s)

SCHUEGARAF, KLAUS F.

Examiner

Laura M Schillinger

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 December 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) 1-5 and 25-28 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 6-12 and 29-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

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DETAILED ACTION***Election/Restrictions***

Newly submitted claims 25-28 directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: Claims 25-28 constitute a separate species from the originally elected claims because they require forming a second electrode and a dielectric over a rugged surface on a substrate

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 25-28 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 6-12 are rejected under 35 U.S.C. 102(e) as being anticipated by Sekine et al ('888).

In reference to claim 6, Sekine teaches a method comprising:

Forming a Si electrode on a wafer (Col. 5, lines: 10-15);

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making the Si electrode (Col.5, lines: 10-15)

after making the silicon electrode rugged (Col.5, lines: 25-35 and Fig.3b (73a)),
replacing the Si in the Si structure with a metal to thereby form a textured metal electrode
(Col.5, lines: 45-55 and Fig. (73b))

In reference to claim 7, Sekine teaches further comprising covering the electrode with a
high dielectric constant material ((Col.6, lines: 4-10 and 30-40)

In reference to claim 8, Sekine teaches further comprising covering the dielectric with a
metal (Col.6, lines: 45-50).

In reference to claim 9, Sekine teaches wherein the step of replacing Si in the Si electrode
structure comprises forming a boundary layer on the Si electrode, exposing the Si
electrode to a refractory metal-halide complex and removing the boundary layer (Col.6,
lines: 1-5).

In reference to claim 10, Sekine teaches wherein the boundary comprises a dielectric
(Col.6, lines: 30-40) and the refractory metal halide comprises WF_6 (Col.5, lines: 15-20).

In reference to claim 11, Sekine teaches wherein the dielectric layer consists of Ta_2O_5
(tantalum oxide) Col.6, lines: 30-40- see also Col.1,lines: 30-31).

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In reference to claim 12, Sekine teaches wherein the metal layer comprises Ti (Col.6, lines: 45-50).

In reference to claim 29, Sekine teaches wherein the rugged structure of Si atoms comprises HGS (Col.1, lines: 55-57).

In reference to claim 30, Sekine teaches wherein the rugged Si electrode comprises HGS (Col.1, lines: 55-57).

Response to Arguments

Applicant's arguments filed 12/18/03 have been fully considered but they are not persuasive. Applicant argues that Sekine fails to teach the amended claim language, however such an argument is not persuasive because Sekine first teaches to form a rugged silicon electrode (73a) and then treat the rugged electrode to a further metal deposition process which forms metal electrode (73b) over top of the rugged silicon electrode surface (73a) as shown in Fig.3b. Therefore, the amended claim limitation is anticipated.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within

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TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura M Schillinger whose telephone number is (571) 272-1697. The examiner can normally be reached on M-T, R-F 7:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl W Whitehead, Jr. can be reached on (571) 272-1702. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LMS


CARL WHITEHEAD, JR.
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 800

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3/19/04